

The copy filmed here has been reproduced thanks to the generosity of:

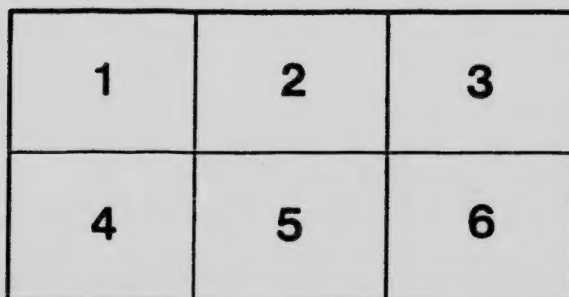
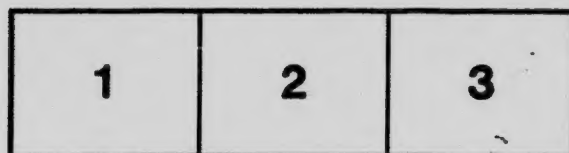
Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol → (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

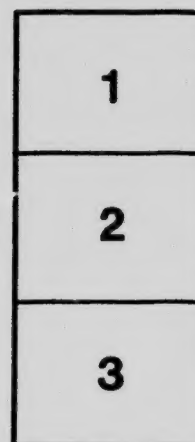
Bibliothèque
Agriculture Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.





THE AGE AND GROWTH OF THE POLLOCK

IN

THE BAY OF FUNDY

By Professor JAMES W. MAVOR, Ph.D., Union College, Schenectady, N.Y.

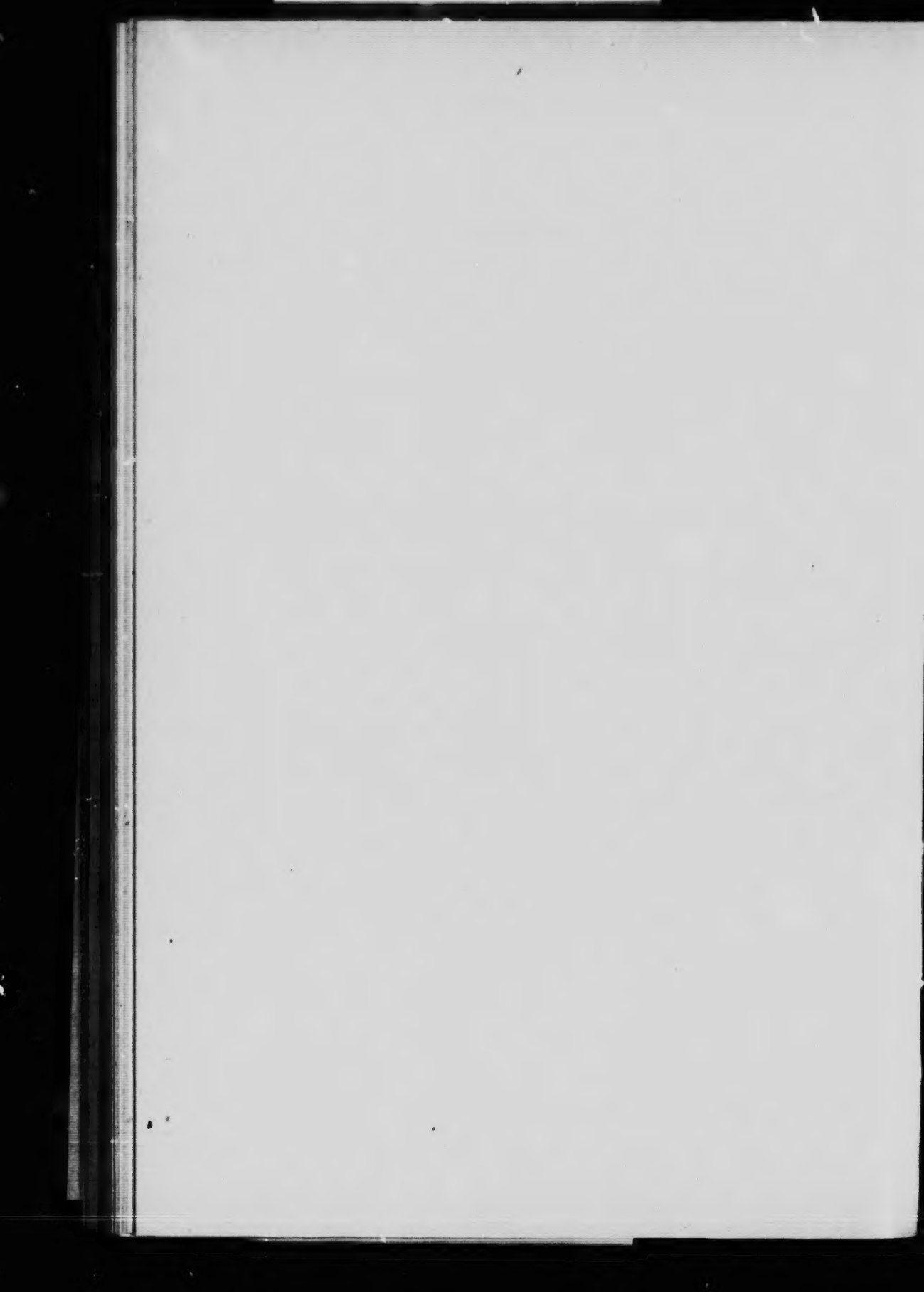
(With One Diagram).



OTTAWA
J. DE LABROQUERIE TACHÉ
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1918

CONTENTS.

	Page
I. Introduction	111
II. Methods of Measuring Fish and Studying Scales.	111
III. The First Year's Growth.	112
IV. The Second Year's Growth.	113
V. The Third Year's Growth.	113
VI. The Frequency of the different year classes in the years 1914, 1915 and 1916.	114
VII. Summary.	116
VIII. Tables 1-12.	116
IX. Graph showing length frequencies of Pollock, 1914, 1915 and 1916.	125



VI

ON THE AGE AND GROWTH OF THE POLLOCK IN THE BAY OF FUNDY.

I.—INTRODUCTION.

The present report represents the results of studies on the age and growth of pollock caught in the Bay of Fundy during the years 1915 and 1916. A report Mr. Douglas Macallum, prepared under the direction of the present writer, then curator of the St. Andrews Biological Station, dealing with the pollock caught in 1914, is already in the press. Mr. Macallum's report refers particularly to the older pollock of from three to six or more years growth, as determined by their scales. Besides working out the rate of growth of these pollock, he obtained indications that the most frequent year class was that of 1900. Some of the results of this report are included in the present paper for comparison with the data obtained in 1915 and 1916.

The object of the investigation has been to determine: (1) the distribution of the young pollock, (2) the rate of growth of young pollock during their first two or three years, (3) the relative frequency of the different year classes in typical commercial catches.

The writer is indebted to the members of the staff of the Biological Station at St. Andrews in 1915 and 1916 for assistance in measuring and taking the scales from fish. He is particularly indebted to Mr. E. Horne Craigie for the measurements made in July, 1915, and to Dr. A. G. Huntsman, the curator of the Station, for assistance and advice in obtaining the young pollock in 1916.

II.—METHODS OF MEASURING FISH AND STUDYING SCALES.

Two measurements for length have been employed. The *standard length* is measured from the tip of the snout to the end of the vertebral column (easily determined by feeling with the fingers). The *total length* is measured from the tip of the snout to the end of the tail, the caudal fin having its normal spread. In the case of fish over 20 cm. in length the measurements are always to the nearest centimeter; in the case of the smaller fish, under 20 cm., to the nearest millimeter. The standard length was chosen at the beginning of these investigations for the following reasons: (1) It can be more accurately determined by the ordinary methods, (2) it is not affected by the position or spread of the tail or by injuring the tail, (3) it measures the actual length of the body of the fish, (4) it has been found by Hjort, in the case of herring, that a better correspondence between actual lengths and lengths as calculated from the position of the rings on the scales is obtained by taking a length *V* measured from the anterior end of the pectoral fin to the end of the vertebral column, than by taking the total length. The standard length differs from *V* by the length of the head only, while the total length differs by the length of head and tail. The total length has been recorded for comparison with the measurements of the European investigators who use this length.

In 1914 the standard length only was recorded. In 1915, for catches No. 1 and No. 2, both the standard and total lengths were recorded, and for catches No. 3 to No. 5 only the standard lengths. In 1916 for catches No. 1 to No. 40, both standard and total lengths were recorded and for catches No. 41 to No. 62, the total length only.

The scales of the fish were taken in most cases from a region marked by the end of the right pectoral fin when extended along the side of the body in a posterior

8 GEORGE V, A. 1918

direction. When the region had been injured either in capture or transport, the nearest uninjured region to this was used. The scales were stored in envelopes on which the length of the fish and other data were written. For microscopic study the scales were cleaned and flattened between two slides. In calculating the proportional lengths from the position of the winter rings, the positions of the outer edges of the winter rings were marked on strips of paper so placed that the edge of the paper coincided with the camera lucida image of the antero-posterior diameter of the scale in its anterior part. These strips were then placed on the apparatus devised by Hjort and the proportional lengths read off. For each fish, at least two scales were examined in this way.

III.—THE FIRST YEAR'S GROWTH.

A number of small Pollock, shown by their scales to be in their first year of growth were obtained. The greater number of these were caught in a shore seine about two fathoms in depth and twenty fathoms in length. The hauls were made in two localities and were as follows:

A.—North of Wilson's beach, Campobello island. Wilson's beach is on the western side of Campobello island and faces a stretch of tidal water lying between this island and the islands to the west of it, often called by the fishermen "The River". The Western shore of Campobello island descends somewhat abruptly, and, in consequence, the tidal current comes close to the shore. The hauls were made at about the time of low water on the morning of August 4, at which time many small pollock ranging around 35 cm. in length were seen in schools inshore. The results of these five hauls all made within a mile or two of each other, are grouped together and labelled catch No. 19. The separate hauls are given below.

Haul No. 1.—The seine was set a considerable distance from the shore so that the corks went under. The catch consisted of four pollock under 11 cm. and 1 pollock 42 cm. total length, and one flounder.

Haul No. 2.—The seine was set so that the cords just remained afloat. The catch consisted of seventeen pollock between 28 and 47 cm. total length, and no other fish.

Haul No. 3.—This was a short haul, the seine being set at about its own depth. The catch consisted of a few flounders and skulpins.

Haul No. 4.—This was a deep haul, the seine being set at about twice its own depth, the corks being completely under, on a beach covered with kelp. The catch consisted of fifteen pollock under 11 cm. total length, four skulpins, four flounders, and two sea ravens.

Haul No. 5.—This haul was made in shallow water and went foul of rocks. The catch consisted of a few flounders and a few skulpins.

B.—Bliss island. These hauls were made on the shores of a small island in the bay of Fundy, northeast of Campobello island and southwest of L'Etang harbour, where, as in the case of Wilson's beach, strong tides run. In all, six hauls were made and the catches numbered 28 to 33. Three hauls were made at low water on the evening of August 16, the seine being set in about its own depth. The hauls yielded the following small gadoids:—

Haul No. 1.—Two hake.

Haul No. 2.—Two pollock, forty-four cod, numerous hake.

Haul No. 3.—One pollock, two cod.

SESSIONAL PAPER No. 38a

Three hauls were taken at the next low water on the morning of August 17, yielding the following small gadoids:—

Haul No. 1.—Numerous hake.

Haul No. 2.—Five pollock, four cod, and four hake.

Haul No. 3.—Four hake.

The length frequencies of the twenty-seven small pollock obtained in catches 19 and 29 to 32 are given in table I.

The length frequencies of the fish caught in the seine catches 19 and 29-32 form rather even curves with a mode at 8 cm. and 9 cm. The mean standard length of these fish, as calculated from measurements made to the nearest millimeter, is 8.7 cm., and the mean total length, as calculated in the same way is 9.7 cm.

The scales of these fish show a series of rings of plates corresponding to the centres of the scales of longer pollock. The number of these rings is from 4 to 10. In no case were the rings of plates close together, indicating winter growth.

In 1913 five small pollock were caught in the shore seine at Sandy Cove, N.S. Their length frequencies were as follows:—

Total lengtha.....	7 cm.	8 cm.	9 cm.	Standard lengtha.....	7 cm.	8 cm.
Frequency.....	1	1	3	Frequency.....	2	3

The measurements were made to the nearest millimeter, and the mean total length was 8.2 cm. and the mean standard length 7.4 cm.

Seven other small pollock were obtained, five from weirs which had been seined for herring and two caught on hook and line from the station wharf. The length frequencies of these fish are given in table 2, and show that these fish were larger than those caught in the shore seine. Their mean standard length was 12.2 cm. and their mean total length was 13.3 cm. Their scales corresponding to their larger size show a greater number of rings of plates but do not show any winter rings. So far as any importance can be attached to the occurrence of these seven fish, it would seem to indicate that the young, after they attain a certain length, about 11 cm., move into slightly deeper water where they are not caught by the shore seine.

IV—THE SECOND YEAR'S GROWTH.

Among the pollock caught in the shore seine at Wilson's beach on August 4, as described in the previous section and grouped together as catch No. 19, eighteen were between 29 and 45 cm. total length. Two of these, specimens No. 660 and No. 661, 29 and 32 cm. total length, show only a single winter ring in their scales. The lengths of these fish at the end of their first winter as calculated from the positions of the winter rings in the scales is shown in table 3.

It is to be noted that these fish are probably large for their age being caught in a shoal with large fish. They constitute, however, the only data the writer has been able to obtain on pollock in their second year's growth. It is hoped in future work to fill this unfortunate gap in the investigations.

V.—THE THIRD YEAR'S GROWTH.

In all seventy-three pollock in their third year were caught. They were all caught in the shore seine near Wilson's beach, Campobello island, and are included in catches 17 and 19.

8 GEORGE V, A. 1918

Catch 17 was taken on the morning of August 3, 1916, when numerous schools of small pollock were seen close inshore just north of Wilson's beach, and the shore seine was set at low water. One haul yielded fifty-seven specimens ranging between 30 cm. and 47 cm. in total length. The seine was rapidly hauled in over a rocky bottom and the only other fish caught was one *Pseudopleuronectes americanus* 35 cm. in length. The scales of these pollock all show two winter rings. The length frequencies are given in table 4. The mean total length is 39.6 cm. and the mean standard length is 36.4 cm.

Catch No. 19 has already been described in a previous section. It included sixteen pollock whose scales showed two winter rings. The total lengths of these fish at the ends of their first and second winters, as calculated from their scales, are given in table No. 5. The lengths given are, in each case, the average of two measurements on different scales. The mean total lengths of two-year old fish of the catch are, at the end of the first winter, 15.4 cm. and at the end of the second winter, 31.8 cm. The mean length of the fish when caught on August 4 was 39.2 cm. The mean increase in total length during the second year, t_2 , was 16.4 cm. and the mean increase during the third year up to August 4 was 7.4 cm. The length frequencies of the fish in the different years of their growth are shown in table 6. The corresponding figures for the standard lengths are: mean standard length at end of first winter, 14.1 cm.; mean standard length at end of second winter, 31.3 cm.; mean standard length when caught on August 4, 35.9 cm.

VI.—THE FREQUENCY OF THE DIFFERENT YEAR CLASSES IN THE YEARS 1914, 1915 AND 1916.

From measurements made on 1,250 pollock caught in July, 1914, Mr. Douglas Macallum constructed a length frequency curve, given in the paper already referred to. This curve, as Mr. Macallum noted, shows two modes, one at 63 cm., and one at 68 cm., the former being the more prominent one. The mean length of 6-year old fish (67.8 cm.) corresponds closely with the frequency curve at 68 cm., as scale studies show, and the mean length of 5-year old fish (63 cm.) with the mode at 62 to 63 cm. The most prominent mode is at 63 cm., i.e., 5-year old fish, or the class of 1909.

The material for the study of the pollock in 1915 consisted of the measurements and scales of 652 fish obtained in five catches from Casco bay, off Campobello island, New Brunswick. The first two of these catches were made on June 22, and included 331 fish, the other three catches were made on July 16, and included 321 fish. The length frequencies of these pollock, both the actual numbers caught and the per cent in each centimeter class, are given in table 7. In catches 1 and 2, both the standard and the total lengths were measured while the catches 3 to 5, only the standard lengths were taken. The table gives the standard lengths for all five catches and, in addition, the total lengths for catches 1 and 2. From the column in the table giving the per cent of specimens in each centimeter class for the first two catches and the similar column for the last three catches, it will be seen that they agree in showing the most frequent classes at 65 and 66 cm. Since the distribution of lengths in the catches is similar and since the catches were chosen at random, it would seem fair to assume that they represent correctly the distribution in point of size of fish caught during June and July in the vicinity of Campobello island. The frequency curve for the standard lengths of catches 1 to 5 is shown in the graph where the lengths have been grouped in 2 cm. classes and the frequencies plotted in per cent. This curve has a single mode at 66 cm., corresponding to the most frequent class in the per cent column. An examination of the scales of the fish from a typical catch, catch 2, was made in the

SESSIONAL PAPER No. 38a

following manner: The envelopes, each containing the scales of a single fish, were arranged in the order of the standard lengths of the fish; the scales from every fourth envelope were examined and the number of rings counted. In this way, without examining scales from all the fish, scales from a representative sample of the catch were examined. The numbers of fish in each year class are shown in table 8. The mean standard length of the 5-year old fish of the class of 1910 was 63.9 cm., and that of the 6-year-old fish of the class of 1909 was 67.4 cm. The mode on the 1915 frequency curve is therefore seen to be due to the greater frequency of the 6-year-old fish of the class of 1909, or the same which gave rise to the most prominent mode in the 1914 frequency curve. The mean standard length of catches 1 and 2 is 67.5 cm., and the mean total length is 72.8 cm.

The material for the study of the pollock of three winters and over, in 1916, consisted of measurements of thirty-two catches made near Campobello island between July 10 and October 16. The first eleven of these catches, Nos. 2 to 18, were measured by the writer, both the standard and the total length being recorded and scale samples taken from each fish. The remaining catches were measured by Capt. Sheppard Mitchell of the Biological Station staff, and the total lengths recorded. The dates and locations of the catches and the number of pollock they contained are given in table 9.

The length frequencies of these catches have been tabulated and catches grouped according to the date of capture. Catches 2 to 12 were made between July 10 and 14; their standard length frequencies are given in table 10, columns I to X. From column IX it can be seen that the mode for these catches is about 66 cm. The mode for catches 15 to 18 is seen from column XIV to be also 66 cm., although the frequencies of the 67 and 68 cm. classes are also large. Catches 2 to 18, which contain 567 fish, have been combined in columns XVI and XVII, which give the length frequencies in per cent. These columns show that the mode, in this case, is to be placed at 67 cm. The mode at 67 cm. is slightly in advance of the mode of the 1915 curve which is at 66 cm.

In the case of the remaining catches, numbers 41 to 62, the total length only was recorded. The catches are grouped according to the time of capture, July, August, first half of September, latter half of September, and October. In each of these groups the combined length frequencies of the separate catches, the per cent length frequency obtained by reducing the combined frequencies to per cent of the total number of fish concerned and the per cent frequency in classes of 2 centimeter intervals are given. The later percentages are each obtained by adding two of the percentages of the previous column. They are entered opposite the length of even number although they really correspond to a length which is the mean of the length of the two classes, the percentages of which were added, e.g. in column IV the per cent 8.0 corresponds to a length of 63.5 cm. The percentages in 2 centimeter classes are given because they make possible a more rapid inspection of the table. From table 11 it will be seen that the mode for catches 2 to 18 is 74 cm., which may be taken to be the total length corresponding to 67 cm. The mode for catches 41 to 62 is at 80 cm. and it will be noted that this is approximately the mode of the separate groups of catches. The total length 80 cm., may be considered to correspond approximately to a standard length of $67/74 \times 80$ cm. or 72.5 cm.

During the summer of 1916, pollock were scarce around Campobello island, but they became more plentiful in the autumn. The catches 41 to 62 measured by Captain Mitchell are therefore regarded as more typical. It is these measurements which I have used in constructing the curve for 1916 in the graph. As these were measurements of the total length and the measurements for 1914 and 1915 were of the standard length the curve has been moved in the diagram so that its actual mode at 80 cm. comes at 72 cm. This has been done merely for the purposes of comparison. The form of the curve for total lengths is of course different from that for standard lengths. It is also to be considered that this curve represents fish caught later in the year than those used

G. GEORGE V, A. 1918

for the 1914 and 1915 curves, a fact which would make the corresponding modal length less than that shown.

The numbers of winter rings have been counted for the scales of the fish of catches 3, 6 and 7, and the results are shown in table 12. The table shows that these catches, which had a mode at 67 cm., were composed predominately of 6-year-old fish. This being the case, the mode at 72 cm. of the curve for catches 41 to 62 shown in fig. 1, probably corresponds to the 7-year-old fish or the fish of the 1909 year class, the same which gave rise to the modes in the 1914 and 1915 curves.

VII.—SUMMARY.

1. It has been found that young pollock showing in their scales no winter rings and therefore probably in their first year's growth occur in shallow tidal water on the western coast of the Bay of Fundy.

2. Data as to the rate of growth during the first two years are given.

3. Evidence is given for believing that the 1909 class has been the most abundant during the three years 1914, 1915, and 1916.

VIII.—TABLES.

TABLE 1.—Length Frequencies of Small Pollock caught in shore seine in 1916.

A. Standard Lengths—Numbers in columns represent number of specimens in centimeter groups.

Length.....	7 cm.	8 cm.	9 cm.	10 cm.	11 cm.
Catch 19.....	3	6	8	2	-
Catch 29-32.....	-	3	-	4	1
Total.....	3	9	8	6	1

B. Total Lengths—Numbers in columns represent number of specimens in centimeter groups.

Length...	7 cm.	8 cm.	9 cm.	10 cm.	11 cm.	12 cm.
Catch 19.....	2	4	7	5	1	-
Catch 29-32.....	-	1	2	-	4	1
Total.....	2	5	9	5	5	1

TABLE 2.—Length Frequencies of Small Pollock, Catches Nos. 21-26, five seined in herring weirs and two caught with hook and line from Station wharf August 3 to 9.

A—STANDARD LENGTHS.

Lengths.....	11 cm.	12 cm.	13 cm.	14 cm.	15 cm.
Frequency.....	3	1	1	2	-

B—TOTAL LENGTHS.

Lengths...	11 cm.	12 cm.	13 cm.	14 cm.	15 cm.
Frequency.....	1	2	1	1	2

SESSIONAL PAPER No. 38a

TABLE 3.—Calculated Lengths of Pollock from Catch No 19, showing a Single Winter Ring.

	Standard Lengths.		Total Lengths.	
	1st. Ring.	Length.	1st. Ring.	Length.
Specimen 660	19 cm.	27 cm.	20 cm.	29 cm.
" 661	20	29	22	32

TABLE 4.—Length Frequencies of Pollock of Catch 17.

A. Standard Length Frequencies in Centimeter Classes.

Cm. Class.....	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Frequency.....	1	-	1	-	-	1	1	8	10	16	3	3	2	8	3	3	1	1

B. Total Length Frequencies in Centimeter Classes.

Cm. Class.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Frequency.....	1	-	1	-	-	1	1	7	11	14	5	2	2	2	4	3	2	1

TABLE 5.—Lengths of Pollock of Catch 19 at the end of each of their first two winters as calculated from their scales and their lengths when caught.

Specimen No.	Standard Length.			Total Length.		
	1st. Ring. 1915.	2nd. Ring. 1916.	Edge. 1916.	1st. Ring. 1915.	2nd. Ring. 1916.	Edge. 1916.
662	12	27	32	13	30	35
663	12	29	34	13	32	37
664	14	28	33	15	32	37
665	13	31	35	14	34	38
666	14	29	35	15	32	38
667	14	28	36	15	30	39
668	13	32	36	14	35	39
669	14	31	36	16	34	39
670	15	32	36	16	35	39
671	17	31	36	19	33	39
672	14	32	36	15	36	40
673	14	33	37	15	36	40
674	17	34	37	19	37	40
675	13	33	38	14	36	41
676	13	33	37	14	36	41
677	17	37	41	19	40	45
Mean	14.1	31.3	35.9	15.4	31.8	39.2

8 GEORGE V, A. 1918

TABLE 6.—Length Frequencies of Pollock of Catch No. 19, those at the end of first and second winters being calculated from their scales.

Length cm.....	13	14	15	16	17	18	19
Frequency.....	2	4	5	2	-	-	2

Length cm.....	30	31	32	33	34	35	36	37	38	39	40
Frequency.....	1		3	1	2	2	4	1	-	-	1

Length cm.....	35	36	37	38	39	40	41	42	43	44	45
Frequency.....	1	-	2	2	5	3	2	-	-	-	1

TABLE 7.—Length Frequencies of Pollock caught in 1915 and Comprising Catches Nos. 1 to 5.

Length in cm.	Standard Lengths.								Total Lengths.		
	No. in Catch.		% in each class.	No. in Catch			% in each class.		No. in Catch.		% in each cm. class.
	1	2		3	4	5	3-5	1-5	1	2	
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
52	1		3					2			
55				2			6	3			
56					2	1	1.0	5			
57				1		2	1.0	5	1		3
58	4	1	1.5	1	1		6	1.4			
59	2	3	1.5	2			6	1.4			
60	2	4	1.8	3	3		1.9	1.8			
61	7	5	3.6	5		1	1.9	2.8			
62	10	10	8.8	6	9	6	6.7	7.7			
63	20	12	10.0	5	5	1	3.5	6.7			
64	24	12	10.9	8	12	2	7.1	8.9	4	1	1.5
65	27	11	11.5	10	15	13	12.2	11.7	2	3	1.5
66	19	20	11.8	9	15	7	9.9	10.7	1		3
67	15	9	7.3	5	16	9	9.6	8.3	8	5	3.9
68	13	12	7.6	9	19	8	11.6	9.4	9	11	6.1
69	3	7	3.0	7	11	7	8.0	5.4	19	12	9.4
70	8	8	4.8	6	7	6	6.1	5.4	22	9	9.4
71	7	5	3.6	1	5	5	3.5	3.5	15	10	7.6
72	9	2	3.3	2	3	8	4.2	3.7	25	14	11.8
73	4	4	2.4	4	2	1	2.2	2.3	19	18	11.2
74	4	1	1.5	3	2	2	2.2	1.8	13	7	6.1
75	2	5	2.1	2	2	6	3.2	2.6	10	8	5.4
76	2	2	1.2	1		1	6	9	7	7	4.2
77	1	1	6	1		4	1.6	1.4	5	5	3.0
78	2		6		1	1	6	6	5	7	3.6
79	1		3	1		2	9	6	7	4	3.3
80						2	6	3	4	4	3.6
81					1		3	2	4	1	1.5
82						1	3	2	4	1	1.5
83									1	4	1.5
84									2	1	9
85									2	3	1.5
86											
87									3		9
Total..	196	135		94	131	96					

NOTE.—Lengths are to nearest centimeter.
 Numbers refer to catch numbers.
 Date of Catches Nos. 1-2, June 22.
 Date of Catches Nos. 3-5, July 16.

SESSIONAL PAPER No. 38a

TABLE 8.—The Age Frequencies of Pollock caught in 1915, Catches 1 to 5.

Number of winter rings.....	4	5	6	7	8
Year class.....	1911	1910	1909	1908	1907
Frequency.....	1	13	17	3	1

TABLE 9.—Catches of Pollock examined in 1913.

Catch.	Date.	Place.	No. of Pollock.
2	July 10.	Off East Quoddy Light, Campobello Island.....	10
3	" 11.	do.	66
6	" 12.	do.	45
7	" 13.	do.	74
10	" 14.	do.	29
11	" 14.	do.	45
12	" 14.	do.	31
15	Aug. 2.	Wolves.....	68
16	" 2.	"	168
18	" 3.	Off Casco Bay Island, Campobello Island.....	31
41	Sept. 4.	Off Pope's Folly, near Campobello Island.	40
42	" 4.	do.	40
43	" 4.	do.	33
44	" 5.	do.	55
45	" 6.	do.	24
46	" 7.	do.	21
47	" 7.	do.	15
48	" 7.	do.	22
49	" 11.	do.	11
50	" 11.	Off Green Island Shoal, near Campobello Island.....	10
51	" 20.	do.	19
52	" 28.	do.	75
53	" 28.	do.	21
54	" 28.	do.	41
55	Oct. 2.	do.	96
56	" 3.	do.	139
57	" 4.	do.	87
58	" 5.	do.	96
59	" 6.	do.	89
60	" 7.	Off Pope's Folly, near Campobello Island.	94
61	" 12.	Off Indian Island, near Campobello Island.....	100
62	" 16.	Off Green Island Shoal, near Campobello Island.	78

B GEORGE V, A. 1918

TABLE 10.—Standard Length Frequencies of Catches 2 to 18.

Frequency in each catch.										Catches 2-12, July 10-14		Frequency in each catch.			Catches 13-18, August 2-3		Catches 1-16, July 10-Aug. 3
Length in cm.	Catch 2, July 10.	Catch 3, July 11.	Catch 6, July 12.	Catch 7, July 13.	Catch 10, July 14.	Catch 11, July 14.	Catch 12, July 14.	Per cent in each cm. class. 1 cm. 2 cm.		Per cent in each cm. class. 1 cm. 2 cm.		Per cent in each cm. class. 1 cm. 2 cm.		Per cent in each cm. class. 1 cm. 2 cm.		Per cent in each cm. class. 1 cm. 2 cm.	
	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	
40.							1	3	3							3	
47.							1	3	3							3	
50.			1					3	3							3	
51.								3	6							4	
52.				1				3								3	
53.				3				10								7	
54.				1		3		13	33							26	
55.		2		1	1	1		23	33	5	3					26	
56.		1		1	1	3		33	46	3	4					13	
57.		3		3	4			53	33	1						26	
58.			1	4		3		40	93		6					11	
59.			3	3		3		53			1					37	
60.		4	3	2		4		47	100		2					4	
61.	1	3	2	3		4		60			5					77	
62.	3	4	1	3		4		73	133	2						26	
63.	2	5	2	6		5		50			8					15	
64.	1		4	3		3		60	110	2	13					34	
65.			4	6				77	80	5	9					60	
66.		4	3	6		4		80	157	8	18					86	
67.	1	3	3	5		3		47	157	7	16					103	
68.	1	8	3	9		1		47	127	6	13					94	
69.		4	2	4		1		40		4	11					86	
70.	1	5	3	2				47	87		13					71	
71.	1	2	1	1				17		6	3					53	
72.		5		3				33	50		5					23	
73.		3		1				17		3	5					45	
74.		1	1	1				13	30	1	5					23	
75.				2				13		7	7					26	
76.		1						13	16	3	3					53	
77.			1					3		4	3					23	
78.										1	1					11	
79.											5					34	
80.			1					3	3		4					19	

SESSIONAL PAPER No. 38a

[illegible]

8 GEORGE V, A. 1918

TABLE 11.—Total length frequencies of catches 2 to 62.

I	Catches 2-12, July 10-14.			Catches 15-18, August 2-5.			Catches 41-50, September 4-11.			Catches 51-54, September 20-26.			Catches 55-62, October 2-16.			Catches 2-18.			Catches 41-62.	
	Combined frequency.	III % in each cm. class.	IV % in each 2 cm. class.	V Combined frequency.	VI % in each cm. class.	VII % in each 2 cm. class.	VIII Combined frequency.	IX % in each cm. class.	X % in each 2 cm. class.	XI Combined frequency.	XII % in each cm. class.	XIII % in each 2 cm. class.	XIV Combined frequency.	XV % in each cm. class.	XVI % in each 2 cm. class.	XVII % in each cm. class.	XVIII % in each 2 cm. class.	XIX % in each cm. class.	XX % in each 2 cm. class.	
44.	1	3	3	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	
45.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
46.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
47.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
48.	1	3	3	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	
49.	2	6	6	2	8	8	2	2	2	2	2	2	2	2	2	2	2	2	2	
50.	3	9	9	3	12	12	3	3	3	3	3	3	3	3	3	3	3	3	3	
51.	4	12	12	4	16	16	4	4	4	4	4	4	4	4	4	4	4	4	4	
52.	5	15	15	5	20	20	5	5	5	5	5	5	5	5	5	5	5	5	5	
53.	6	18	18	6	24	24	6	6	6	6	6	6	6	6	6	6	6	6	6	
54.	7	21	21	7	28	28	7	7	7	7	7	7	7	7	7	7	7	7	7	
55.	8	24	24	8	32	32	8	8	8	8	8	8	8	8	8	8	8	8	8	
56.	9	27	27	9	36	36	9	9	9	9	9	9	9	9	9	9	9	9	9	
57.	10	30	30	10	40	40	10	10	10	10	10	10	10	10	10	10	10	10	10	
58.	11	33	33	11	44	44	11	11	11	11	11	11	11	11	11	11	11	11	11	
59.	12	36	36	12	48	48	12	12	12	12	12	12	12	12	12	12	12	12	12	
60.	13	39	39	13	52	52	13	13	13	13	13	13	13	13	13	13	13	13	13	
61.	14	42	42	14	56	56	14	14	14	14	14	14	14	14	14	14	14	14	14	
62.	15	45	45	15	60	60	15	15	15	15	15	15	15	15	15	15	15	15	15	
63.	16	48	48	16	64	64	16	16	16	16	16	16	16	16	16	16	16	16	16	
64.	17	51	51	17	68	68	17	17	17	17	17	17	17	17	17	17	17	17	17	
65.	18	54	54	18	72	72	18	18	18	18	18	18	18	18	18	18	18	18	18	
66.	19	57	57	19	76	76	19	19	19	19	19	19	19	19	19	19	19	19	19	
67.	20	60	60	20	80	80	20	20	20	20	20	20	20	20	20	20	20	20	20	
68.	21	63	63	21	84	84	21	21	21	21	21	21	21	21	21	21	21	21	21	
69.	22	66	66	22	88	88	22	22	22	22	22	22	22	22	22	22	22	22	22	
70.	23	69	69	23																

POLLOCK IN BAY OF FUNDY

SESSIONAL PAPER No. 38a

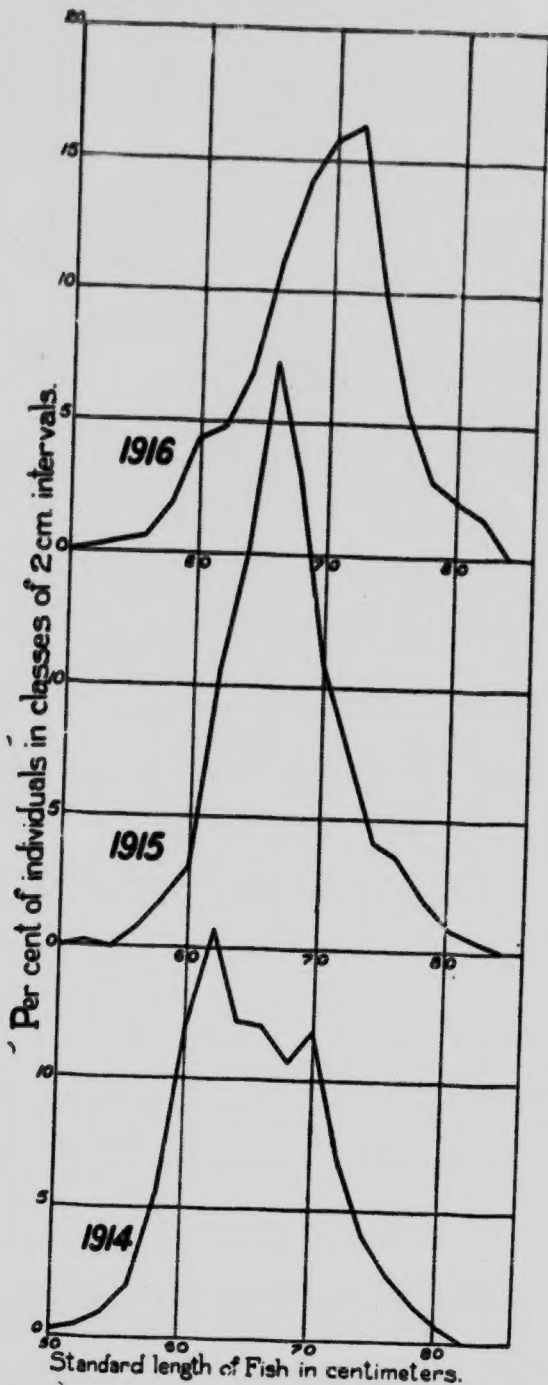
80	1	3	5	10	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	201	205	209	213	217	221	225	229	233	237	241	245	249	253	257	261	265	269	273	277	281	285	289	293	297	301	305	309	313	317	321	325	329	333	337	341	345	349	353	357	361	365	369	373	377	381	385	389	393	397	401	405	409	413	417	421	425	429	433	437	441	445	449	453	457	461	465	469	473	477	481	485	489	493	497	501	505	509	513	517	521	525	529	533	537	541	545	549	553	557	561	565	569	573	577	581	585	589	593	597	601	605	609	613	617	621	625	629	633	637	641	645	649	653	657	661	665	669	673	677	681	685	689	693	697	701	705	709	713	717	721	725	729	733	737	741	745	749	753	757	761	765	769	773	777	781	785	789	793	797	801	805	809	813	817	821	825	829	833	837	841	845	849	853	857	861	865	869	873	877	881	885	889	893	897	901	905	909	913	917	921	925	929	933	937	941	945	949	953	957	961	965	969	973	977	981	985	989	993	997	1001	1005	1009	1013	1017	1021	1025	1029	1033	1037	1041	1045	1049	1053	1057	1061	1065	1069	1073	1077	1081	1085	1089	1093	1097	1101	1105	1109	1113	1117	1121	1125	1129	1133	1137	1141	1145	1149	1153	1157	1161	1165	1169	1173	1177	1181	1185	1189	1193	1197	1201	1205	1209	1213	1217	1221	1225	1229	1233	1237	1241	1245	1249	1253	1257	1261	1265	1269	1273	1277	1281	1285	1289	1293	1297	1301	1305	1309	1313	1317	1321	1325	1329	1333	1337	1341	1345	1349	1353	1357	1361	1365	1369	1373	1377	1381	1385	1389	1393	1397	1401	1405	1409	1413	1417	1421	1425	1429	1433	1437	1441	1445	1449	1453	1457	1461	1465	1469	1473	1477	1481	1485	1489	1493	1497	1501	1505	1509	1513	1517	1521	1525	1529	1533	1537	1541	1545	1549	1553	1557	1561	1565	1569	1573	1577	1581	1585	1589	1593	1597	1601	1605	1609	1613	1617	1621	1625	1629	1633	1637	1641	1645	1649	1653	1657	1661	1665	1669	1673	1677	1681	1685	1689	1693	1697	1701	1705	1709	1713	1717	1721	1725	1729	1733	1737	1741	1745	1749	1753	1757	1761	1765	1769	1773	1777	1781	1785	1789	1793	1797	1801	1805	1809	1813	1817	1821	1825	1829	1833	1837	1841	1845	1849	1853	1857	1861	1865	1869	1873	1877	1881	1885	1889	1893	1897	1901	1905	1909	1913	1917	1921	1925	1929	1933	1937	1941	1945	1949	1953	1957	1961	1965	1969	1973	1977	1981	1985	1989	1993	1997	2001	2005	2009	2013	2017	2021	2025	2029	2033	2037	2041	2045	2049	2053	2057	2061	2065	2069	2073	2077	2081	2085	2089	2093	2097	2101	2105	2109	2113	2117	2121	2125	2129	2133	2137	2141	2145	2149	2153	2157	2161	2165	2169	2173	2177	2181	2185	2189	2193	2197	2201	2205	2209	2213	2217	2221	2225	2229	2233	2237	2241	2245	2249	2253	2257	2261	2265	2269	2273	2277	2281	2285	2289	2293	2297	2301	2305	2309	2313	2317	2321	2325	2329	2333	2337	2341	2345	2349	2353	2357	2361	2365	2369	2373	2377	2381	2385	2389	2393	2397	2401	2405	2409	2413	2417	2421	2425	2429	2433	2437	2441	2445	2449	2453	2457	2461	2465	2469	2473	2477	2481	2485	2489	2493	2497	2501	2505	2509	2513	2517	2521	2525	2529	2533	2537	2541	2545	2549	2553	2557	2561	2565	2569	2573	2577	2581	2585	2589	2593	2597	2601	2605	2609	2613	2617	2621	2625	2629	2633	2637	2641	2645	2649	2653	2657	2661	2665	2669	2673	2677	2681	2685	2689	2693	2697	2701	2705	2709	2713	2717	2721	2725	2729	2733	2737	2741	2745	2749	2753	2757	2761	2765	2769	2773	2777	2781	2785	2789	2793	2797	2801	2805	2809	2813	2817	2821	2825	2829	2833	2837	2841	2845	2849	2853	2857	2861	2865	2869	2873	2877	2881	2885	2889	2893	2897	2901	2905	2909	2913	2917	2921	2925	2929	2933	2937	2941	2945	2949	2953	2957	2961	2965	2969	2973	2977	2981	2985	2989	2993	2997	3001	3005	3009	3013	3017	3021	3025	3029	3033	3037	3041	3045	3049	3053	3057	3061	3065	3069	3073	3077	3081	3085	3089	3093	3097	3101	3105	3109	3113	3117	3121	3125	3129	3133	3137	3141	3145	3149	3153	3157	3161	3165	3169	3173	3177	3181	3185	3189	3193	3197	3201	3205	3209	3213	3217	3221	3225	3229	3233	3237	3241	3245	3249	3253	3257	3261	3265	3269	3273	3277	3281	3285	3289	3293	3297	3301	3305	3309	3313	3317	3321	3325	3329	3333	3337	3341	3345	3349	3353	3357	3361	3365	3369	3373	3377	3381	3385	3389	3393	3397	3401	3405	3409	3413	3417	3421	3425	3429	3433	3437	3441	3445	3449	3453	3457	3461	3465	3469	3473	3477	3481	3485	3489	3493	3497	3501	3505	3509	3513	3517	3521	3525	3529	3533	3537	3541	3545	3549	3553	3557	3561	3565	3569	3573	3577	3581	3585	3589	3593	3597	3601	3605	3609	3613	3617	3621	3625	3629	3633	3637	3641	3645	3649	3653	3657	3661	3665	3669	3673	3677	3681	3685	3689	3693	3697	3701	3705	3709	3713	3717	3721	3725	3729	3733	3737	3741	3745	3749	3753	3757	3761	3765	3769	3773	3777	3781	3785	3789	3793	3797	3801	3805	3809	3813	3817	3821	3825	3829	3833	3837	3841	3845	3849	3853	3857	3861	3865	3869	3873	3877	3881	3885	3889	3893	3897	3901	3905	3909	3913	3917	3921	3925	3929	3933	3937	3941	3945	3949	3953	3957	3961	3965	3969	3973	3977	3981	3985	3989	3993	3997	4001	4005	4009	4013	4017	4021	4025	4029	4033	4037	4041	4045	4049	4053	4057	4061	4065	4069	4073	4077	4081	4085	4089	4093	4097	4101	4105	4109	4113	4117	4121	4125	4129	4133	4137	4141	4145	4149	4153	4157	4161	4165	4169	4173	4177	4181	4185	4189	4193	4197	4201	4205	4209	4213	4217	4221	4225	4229	4233	4237	4241	4245	4249	4253	4257	4261	4265	4269	4273	4277	4281	4285	4289	4293	4297	4301	4305	4309	4313	4317	4321	4325	4329	4333	4337	4341	4345	4349	4353	4357	4361	4365	4369	4373	4377	4381	4385	4389	4393	4397	4401	4405	4409	4413	4417	4421	4425	4429	4433	4437	4441	4445	4449	4453	4457	4461	4465	4469	4473	4477	4481	4485	4489	4493	4497	4501	4505	4509	4513	4517	4521	4525	4529	4533	4537	4541	4545	4549	4553	4557	4561	4565	4569	4573	4577	4581	4585	4589	4593	4597	4601	4605	4609	4613	4617	4621	4625	4629	4633	4637	4641	4645	4649	4653	4657	4661	4665	4669	4673	4677	4681	4685	4689	4693	4697	4701	4705	4709	4713	4717	4721	4725	4729	4733	4737	4741	4745	4749	4753	4757	4761	4765	4769	4773	4777	4781	4785	4789	4793	4797	4801	4805	4809	4813	4817	4821	4825	4829	4833	4837	4841	4845	4849	4853	4857	4861	4865	4869	4873	4877	4881	4885	4889	4893	4897	4901	4905	4909	4913	4917	4921	4925	4929	4933	4937	4941	4945	4949	4953	4957	4961	4965	4969	4973	4977	4981	4985	4989	4993	4997	5001	5005	5009	5013	5017	5021	5025	5029	5033	5037	5041	5045	5049	5053	5057	5061	5065	5069	5073	5077	5081	5085	5089	5093	5097	5101	5105	5109	5113	5117	5121	5125	5129	5133	5137	5141	5145	5149	5153	5157	5161	5165	5169	5173	5177	5181	5185	5189	5193	5197	5201	5205	5209	5213	5217	5221	5225	5229	5233	5237	5241	5245	5249	5253	5257	5261	5265	5269	5273	5277	5281	5285	5289	5293	5297	5301	5305	5309	5313	5317	5321	5325	5329	5333	5337	5341	5345	5349	5353	5357	5361	5365	5369	5373	5377	5381	5385	5389	5393	5397	5401	5405	5409	5413	5417	5421	5425	5429	5433	5437	5441	5445	5449	5453	5457	5461	5465	5469	5473	5477	5481	5485	5489	5493	5497	5501	5505	5509	5513	5517	5521	5525	5529	5533	5537	5541	5545	5549	5553	5557	5561	5565	5569	5573	5577	5581	5585	5589	5593	5597	5601	5605	5609	5613	5617
----	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

8 GEORGE V, A. 1918

TABLE 12.—Length frequencies of the Pollock of cat 3, 6 and 7, arranged according to age and catch.

Length to nearest cm.	Catch 3.			Catch 6.			Catch 7.		
	No. of winter rings.			No. of winter rings.			No. of winter rings.		
	4	5	6	4	5	6	4	5	6
51				1					
52							1		
53							3		
54							1		
55	2						1		
56	1						1		
57	3				1		2	1	
58				4			3		
59		4		1	2		2	2	
60		2	1		2		2	2	
61	1	2	1		1		1	1	1
62		5			2			6	
63		2			1	1		2	1
64					1	3	1	1	
65		1	3		2			1	4
66		2	2		2	1		2	3
67		2	2			2		1	4
68		5	3		1	2		1	3
69		3	3		1	1		1	3
70		2	2		2	1		1	2
71		1	1			1			
72		3	3					1	2
73		2	2						1
74		1	1			1			1
75								1	1
76		1	1	1					
77									
78									
79									
80									
81									
82									1
Total...	7	38	27	7	20	15	11	27	32
Mean lengths..	56.9	62.9	68.6	59.9	63.8	66.3	55.9	63.3	68.4

SESSIONAL PAPER No. 38a



Curves showing length frequencies of Pollock caught in 1914, 1915 and 1916.

The curves for 1914 and 1915 are constructed from measurements of the standard length and are based upon measurements on 1,250 fish in the case of the 1914 curve and in the case of the 1915 curve on 652 fish. The curve for 1916 is based on measurements of the total length of 1,168 fish. In order to compare it with the curves for 1914 and 1915 the whole curve has been moved to the left so that the mode which was at 80 cm. is at 72 cm.